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ABSTRACT

Bilingual vs. unilingual instruction was studied in the teaching of 5 positional-preposition concepts (e.g., under) to Mexican American Headstart 4-year-olds. Treatments consisted of instruction in Spanish only, English only, or bilingually to the 48 subjects exposed to the prepositional concepts via tape-recorded programmed instruction given daily for 10 minutes. Assignment to control and treatment groups was randomly stratified by sex, and subjects were pretested the first day of instruction and posttested on the final (3rd) day. These tests, administered in English and Spanish, included a transfer test consisting of a 2-dimensional presentation of the same prepositions and a learning task in the language opposite from instruction. All criterion tests required verbal labeling and demonstration. Analysis of covariance and Newman-Keuls comparisons indicated that posttest scores of the treatment groups were higher than those of the control group, reflecting the effect of instruction vs. no instruction. Significant differences were found as a function of language exposure in the home, but no significant differences were found between treatment groups. The study is limited by sampling practices and restricted treatment time. An appendix contains the instructional treatments used. (Author/NC)

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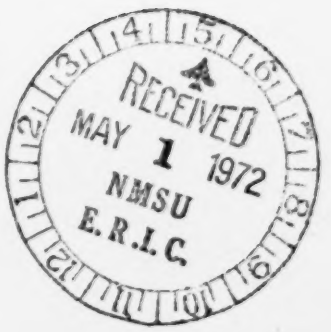
COMPARISON OF BILINGUAL VS. SINGLE LANGUAGE INSTRUCTION IN CONCEPT LEARNING IN MEXICAN-AMERICAN FOUR YEAR OLDS



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ABSTRACT

Bilingual vs. unilingual instruction was studied in the teaching of five prepositional concepts to four-year-old Mexican-American Headstart children. It was hypothesized no significant differences would be found as a function of exposure to language in the home and in performance of labeling and demonstration on an immediate criterion test, transfer test, or in a task in the opposite language from instruction. Treatments consisted of instruction in Spanish only, English only, bilingually, and a control group.

Forty-eight Mexican-American four-year-olds attending Headstart were subjects for an experiment involving five prepositional concepts in a programmed instruction format consisting of three ten-minute daily sessions. Assignment to control and treatment groups was randomly stratified by sex, and the subjects were pretested the first day of instruction and posttested following instruction on the third day. These tests were given in English and Spanish. The three treatment groups receiving instruction were given a transfer test consisting of a two-dimensional presentation of the same prepositions and a learning task in the language opposite from instruction. All criterion tests required labeling and demonstration.

Analysis of covariance and Newman-Keuls comparisons indicated scores of the three treatment groups were higher than the control group on posttest scores, reflecting the effect of instruction vs. no instruction ($p < .01$) and significant differences were found as a function of language exposure in the home ($p < .05$).

CHAPTER 1

INTRODUCTION

One explanation underlying the droupout rate of Mexican-American children is surely the frustration of trying to cope with two languages. A child being instructed in his second language may be able to label in this language but may not comprehend the concept behind the label. Many educators contend that basic concepts usually learned in the first, second and third grades are necessary foundations for performing scholastic tasks in grades four through twelve (Jensen, 1967). The teacher must help the child master these concepts in his second language minimizing the time differences in instruction when compared with the non-Mexican-American learner.

This study sought to determine the effects of alternative instruction in concept formation comparing achievement of Headstart learners taught in either English only, Spanish only or a combination of English and Spanish.

CHAPTER 2

REVIEW OF RELATED LITERATURE

Following Hull's first systematic study of concept formation in the 1920's, the literature contains an abundance of research in this area. In line with this study, research relating to the disadvantaged child exposed to several languages will be reviewed.

The Mexican-American Headstart child may often be affected by a language difficulty. Travers (1967) acknowledges that concepts can be acquired without language, but language is necessary to state relationships between concepts. Deutsch (1963) stresses that it is not possible to teach either visual or auditory discrimination in the absence of an external anchor in the child's language system. In other words, he must know the word or object used in visual or auditory training, and he must understand the language of the teacher. Gagne (1964) states:

> In concept learning, there can be little doubt that verbal instructions have a marked effect. The absence of instructions in a relatively simple situation can make for a remarkable difficult task.

Altus (1949) studied bilingual illiterates and noted the persistance of the linguistic preference of Spanish indicated a handicap in becoming literate in English that is not apparent in other minority groups.

Maccoby and Modiano (1967) studied village and urban Mexican children and North American suburban children, in success on an equivalence task. The Mexican urban sample showed superiority in formulating equivalences, as did the Boston children. The urban child was found to be more sophisticated linguistically and more abstract. Jones (1960) found a definite correlation between socio-economic status and general linguistic development when studying monolinguals and bilinguals whose backgrounds were comparable economically.

Bilingualism among Headstart children does not necessarily mean "fluent in two languages." Natela Imedadze, from the Institute of Psychology in Tbilisi, USSR, observed the language of a bilingual child from the start of active speech to age four. She says:

> Parallel mastering of two languages is not a mechanical juxtaposition of two processes of mastering the language, but the formation of language systems under conditions of complex interaction.

Macnamara (1966) studied bilingualism and primary education and found adverse effects in school subjects other than reading caused by instruction in a weaker language. A group of English-speaking children in Ireland were taught arithmetic in Irish over a six-year period. He found that their arithmetic deteriorated, particularly in the area of problem solving. In addition, the first language was affected negatively by instruction only in the second language. When subjects were taught all school subjects in Irish, they tested poorly in both English and Irish.

Macnamara (1967) also found in testing 234 sixth grade native English speakers in Irish schools, that when information is provided

in their weaker language, the problem solving ability of bilingual children is poorer even when the components of the problem are separately understood.

Manual (1953) observed that students became discouraged and frustrated in attempting to understand unfamiliar subject matter in an unfamiliar tongue. In fact, he observed that stuttering sometimes appears.

Three other early studies, Fritz (1934), Manuel (1935), and Smith (1939), found bilinguals lacking in language development, but these studies did not control for intelligence and socio-economic status.

Linn (1967) studied ten Mexican-Americans who were bilingual before kindergarten, ten Mexican-Americans who spoke only English, and ten Anglo-Americans who spoke only English. The thirty children were tested at the seventh and eighth grade levels. Significant difference was found in favor of monolinguals in silent reading comprehension, oral reading accuracy and comprehension, inflection, and general language development. Monolinguals made fewer errors in consonant articulation. The author emphasized generalization based on the results should be made cautiously for unknown ethnic factors in the environment might be a major influence and stressed that school personnel be made aware of special language problems of children in a two-language environment. Lerea and Kohut (1961) found bilinguals learned and relearned a Micro Utterance-Association Task more rapidly than monolinguals. They felt that the association factor may have been responsible for bilinguals' superiority and therefore bilinguals may possess a unique potential.

Bilingual Teaching

The Mexican American Affairs Unit of the United States Office of Education (1968) has identified three imperatives for educational success of the Mexican-American:

1- Bilingual teachers.
2- Instruction in both English and Spanish to strengthen mother tongue as well as to learn second language.
3- Instruction to preschool Mexican-American pupils.

Holland (1966) reported that bilingual education for bilingual children proves a worthwhile experiment. He tested thirty-six Spanish speaking children recommended for psychological testing in the Tucson Public School system and all but three children had language difficulties. He pointed out the first speech patterns of most Spanish-speaking children are formed in the home and that the children develop a small vocabulary of basic Spanish words and concepts directly related to very restricted in-group experiences. When the child enters school he is confronted with words and concepts in English for which he has no comparable terms in Spanish. When the child must utilize a concept learned in the Anglo culture, he introduces English into his conversation.

Gaarder (1967) has expressed the position that the second language should be taught as a means to an end rather than an end in itself and to increase second language experience without crowding the curriculum. He referred to a longitudinal study begun in 1963 at the Coral Way Elementary School in Miami. In 1967, Cuban children tested just slightly below their Anglo peers, but it was concluded that the use of Spanish in the home was a major cause for this difference.

The need for special education for the Mexican-American is described in a statement by Faye Bumpass (1967), in testifying before a Senate subcommittee:

> In the five state area (Texas, New Mexico, Colorado, Arizona and California) there exists at least 1.75 million school children with Spanish surnames whose linguistic, cultural and psychological handicaps cause them to experience, in general, academic failure in our schools or at best limit them only to mediocre success.

SUMMARY

Clearly, a case has been made for testing the effects of bilingual instructional modes as a method of potential importance in the education of Mexican-American children.

CHAPTER 3

HYPOTHESES

It was hypothesized that:

1. No significant differences will be found in performance of labeling and demonstration on an immediate posttest in Spanish and English when children are instructed in Spanish only, English only, bilingually, or who receive no special instruction.

2. No significant differences will be found in performance of labeling and demonstration on an immediate criterion test in the language opposite from instruction when children are instructed in Spanish only, English only, or bilingually.

3. No significant differences will be found in performance of labeling and demonstration on an immediate transfer test in the language of instruction when children are instructed in Spanish only, English only, or bilingually.

4. No significant differences will be found in performance of labeling and demonstration on an immediate posttest and language used in the home.

CHAPTER 4

METHOD

Design

A 1 x 4 design was used involving three treatment groups and a control group. The same five prepositions were given to three of the four treatment groups in the following way: T-1, Spanish only; T-2, English only; and T-3, a combination of Spanish and English. T-4, the control group, received no instruction in prepositions.

Programmed instruction via a tape recorder was used to control for any teacher variable such as voice inflection or fatigue.

Subjects

The subjects were forty-eight Mexican-American four-year-old Headstart children from Headstart schools. The group consisted of twenty-four boys and twenty-four girls. Approximately half of the children came from families in which only Spanish was spoken in the home. The number of siblings in the home varied from none to ten, averaging three siblings per family. The area in which the subjects lived was designated as low socio-economic in East Los Angeles. Eligibility for Headstart is restricted to families with incomes of $3,500 a year or less per family or families receiving welfare.

In the Los Angeles Mexican-American area, frequently it is found that Mexican-Americans do not speak Spanish exclusively. The

population of this particular Headstart site fell into five categories: 1) Only Spanish spoken and understood, 2) Spanish spoken but some commands in English understood, 3) Both English and Spanish spoken and understood, 4) English spoken but some commands in Spanish understood, and 5) Only English spoken and understood.

The subjects in the Vallejo Headstart site participating in this study were actually from two different Headstart schools sharing the same building while construction of a second building in another area was in progress. One group of children attended school from 8:30 am to 11:30 am. The other group attended from 12:00 pm to 3:00 pm.

Selection and Assignment to Groups

Matched samples were chosen from the whole population of sixty children, by sex, morning and afternoon attendance, and English spoken or not spoken in the home. Subjects were then blocked by sex and stratified by scores on the pretest. All children with "8" or better on the pretest were eliminated and the remainder were stratified on a basis of pretest scores and randomly assigned to four treatment groups.

Three groups received instruction through structured lesson material via tape recorder (See Appendix A). Instruction was presented in the following way: Treatment Group 1 in Spanish only, Treatment Group 2 in English only, and Treatment Group 3 in a combination of Spanish and English. Treatment Group 4, the control group, received no instruction. Treatment time for the three experimental groups was the same.

Selection of Task

Two small pilot studies were conducted with Mexican-American

Headstart children on a one-to-one basis to ascertain what and how many positional preposition concepts were to be taught. It was concluded that five prepositions could be presented over a three-day period in the form of a daily ten-minute instructional segment. The prepositions were: "under, inside, on top, in back" and "in front." The Spanish translation was verified for correct local colloquialisms by two Mexican-American preschool teachers.

Procedure

Pretest

The forty-eight subjects were administered a pretest individually requiring them to manipulate a pencil in spatial relation to a cardboard box, in Spanish and in English. The box and pencil were presented to the subject with the following dialogue in Spanish:

> Aquí está una cajita. Aquí está un lápiz. Ponlo debajo de la cajita. Ponlo encima de la cajita. Ponlo detrás de la cajita. Ponlo en frente de la cajita. Ponlo adentro de la cajita.

The examiner then asked, "¿Donde está?" as she placed the pencil under, on top, in back, in front, and inside.

The identical pretest was then administered to the subject in English. The box and pencil were presented to the subject with the following dialogue in English:

> Here is a box. Here is a pencil. Put it under the box. Put it on top of the box. Put it behind the box. Put it in front of the box. Put it inside the box.

The examiner then asked, "Where is it?" as she placed the pencil under, on top, in back, in front, and inside.

Instruction Preparation

The instruction for learning the concept of the five prepositions was presented via tape recorder (See Appendix A). The subjects had never responded to taped commentary and the first two minutes of the taped instruction were devoted to preparing the child for this task. A song was sung telling of a dog that barked and requested the listener to respond by baking like a dog. Because the criterion task required the subject to label verbally, the experimenter encouraged the subject to respond aloud. After the child had responded four times to this warm-up tape, the instruction began and the experimenter demonstrated to the taped commentary, but remained silent.

Irstruction

Three subjects at a time received the instructional material. Each daily session averaged nine minutes including two interruptions to present a song or sound effects segment. These interruptions were found necessary to keep the child motivated to focus his listening to the tape recorder. The subject manipulated the objects and receptacles the experimenter handed to him in accordance with the taped commentary. (See Appendix A).

Treatment group 1 received instruction in Spanish only, Treatment group 2 received instruction in English only, and Treatment Group 3 received instruction in a combination of Spanish and English.

Criterion Tasks

Criterion Test One: Direct Posttest, Spanish and English

The posttest, identical to the pretest, was administered within a half hour after the last day of instruction. The box and

pencil were presented to the subject with the following dialogue in Spanish:

> Aquí está una cajita. Aquí está un lápiz. Ponlo debajo de la cajita. Ponlo encima de la cajita. Ponlo detrás de la cajita. Ponlo en frente de la cajita. Ponlo adentro de la cajita.

The examiner then asked, "¿Dónde está?" as she placed the pencil under, on top, in back, in front, and inside.

The identical posttest was then administered to the subject in English. The box and pencil were presented to the subject with the following dialogue in English:

> Here is a box. Here is a pencil. Put it under the box. Put it on top of the box. Put it behind the box. Put it in front of the box. Put it inside the box.

The examiner then asked "Where is it?" as she placed the pencil in each of the five positions. A score of one or zero was given for each of the twenty items.

Criterion Test Two: Opposite Language

Ability to respond to the five prepositions in the language opposite from instruction was scored through a criterion test which permitted the subject four attempts at each item. The subject was asked to place the checker in each of the five positions. A "1" was scored for each position correctly placed. Following the opportunity for the child to respond, the examiner then named the preposition while placing the checker in each of the five positions. The subject was then requested to respond only to the prepositions he had missed on the first trial. A correct placement was scored as "2" and the examiner again named all prepositions while placing the checker in

each of the five positions.

Subjects were allowed up to four attempts, and a score of "5" indicated a failure to reach criterion for that particular preposition.

Treatment 1 received Criterion test two in English only, Treatment 2, in Spanish only and Treatment 3, although given instruction in a combination of English and Spanish, were given the test in both languages as a comparison with Treatment Groups 1 and 2. This results in Treatment 1 and Treatment 2 receiving the task in the language opposite from that which they experienced in instruction.

Criterion Test Three: Transfer Test

A transfer test was administered immediately following the posttest. The transfer test required the subject to mark in a booklet with a crayon. None of the subjects had previously marked in a booklet in a structured situation, and therefore the first four pages were devoted to teaching the task of marking one item out of three choices. The fifth page started the actual transfer test (See Appendix B).

The booklet consisted of pictures representing the pencil in spatial relation to a box or a pumpkin. The subject had to choose the one picture out of three that represented the preposition requested by the examiner. A score of "1" or zero was given for each of the five items. The experimenter pointed to a picture representing a positional preposition and asked, "Where is the pencil?" or "¿Dónde está el lápiz?", depending on the treatment group. Again, a score of "1" or zero was given for each of the five items.

TABLE 1

MEANS AND STANDARD DEVIATIONS OF PRE AND POSTTEST LABELING AND DEMONSTRATING SCORES HALF IN SPANISH AND HALF IN ENGLISH FOR FOUR TREATMENT GROUPS

(Scored: Demonstration - 10, Labeling - 10, Total possible - 20)

	T-1 Spanish		T-2 English		T-3 Span/Eng		T-4 Control	
N	12		11		12		13	
	$\bar{X}$	s	$\bar{X}$	s	$\bar{X}$	s	$\bar{X}$	s
Demonstration								
Pre	3.5	2.1	2.7	1.5	3.1	1.2	2.6	1.5
Post	7.2	2.1	5.2	2.0	7.3	2.5	3.9	2.1
Labeling								
Pre	0.1	0.3	0.6	0.7	0.4	0.7	0.6	1.0
Post	4.1	2.3	4.6	2.7	3.3	2.6	0.8	1.1
Total								
Pre	3.6	2.1	3.4	1.6	3.5	1.6	3.2	1.5
Post	11.3	3.8	9.8	4.0	10.7	4.2	4.8	2.8

TABLE 2

ANALYSIS OF COVARIANCE ON LABELING AND DEMONSTRATION

POSTTEST SCORES OF FOUR TREATMENT GROUPS

		Demonstration		Labeling		Total	
Source of Variation	df	MS	F	MS	F	MS	F
Treatments	3	29.1	6.2**	36.1	7.2**	106.4	8.8**
Error	43	4.7		5.0		12.1	

** $p < .01$

TABLE 3

SUMMARY OF SIGNIFICANT DIFFERENCES ON NEWMAN-KEULS TESTS OF ORDERED MEANS BY DEPENDENT VARIABLES

Dependent Variable	Group Comparisons[a]	q
Posttest Demonstration	T-3 Bilingual Instruction/ T-4 Control	5.4**
	T-1 Spanish Instruction/ T/4 Control	5.2**
Posttest Labeling	T-2 English Instruction/ T-4 Control	6.0**
	T-3 Bilingual Instruction/ T-4 Control	3.9**
	T-1 Spanish Instruction/ T-4 Control	5.2**
Posttest Labeling and Demonstration	T-2 English Instruction/ T-4 Control	5.0**
	T-3 Bilingual Instruction/ T-4 Control	5.9**
	T-1 Spanish Instruction/ T-4 Control	6.5**

**p .01

[a]In each comparison the first group is always superior to the second.

TABLE 4

MEANS AND STANDARD DEVIATIONS OF OPPORTUNITIES[1] TO LEARN IN A LANUGAGE OPPOSITE FROM INSTRUCTION ON LABELING AND DEMONSTRATION FOR THREE TREATMENT GROUPS

	T-1 Spanish		T-2 English		T-3 Span/Eng	
N	12		11		12	
	(English Test)		(Spanish Test)		(Bilingual Test)	
	$\bar{X}$	s	$\bar{X}$	s	$\bar{X}$	s
Demonstration Trials	18.8	12.0	20.9	8.4	18.2	8.9
Labeling Trials	27.8	15.6	27.1	16.9	31.7	10.9
Total Trials	46.7	25.2	48.0	20.4	49.8	16.5

[1]Best possible score: 10. Poorest possible score: 50.

TABLE 5

ANALYSIS OF COVARIANCE ON LABELING AND DEMONSTRATION IN A LANGUAGE OPPOSITE FROM INSTRUCTION FOR THREE TREATMENT GROUPS

Source of Variation	df	Demonstration MS	Demonstration F	Labeling MS	Labeling F	Total MS	Total F
Treatments	2	14.9	0.2	86.6	0.4	27.8	.07
Error	31	96.9		214.4		423.7	

(Pretest used as covariate)

TABLE 6

MEANS AND STANDARD DEVIATIONS OF TRANSFER SCORES ON LABELING AND DEMONSTRATION FOR THREE TREATMENT GROUPS

(Scored: Demonstration - 10, Labeling - 10, Total possible - 20)

	T-1 Spanish		T-2 English		T-3 Span/Eng	
N	12		11		12	
	(Spanish Test)		(English Test)		(Bilingual Test)	
	$\bar{X}$	s	$\bar{X}$	s	$\bar{X}$	s
Demonstration Transfer	7.7	1.9	5.2	2.0	6.7	2.4
Labeling Transfer	4.2	3.6	4.6	2.7	2.7	2.3
Total Transfer	11.9	4.8	12.4	6.0	9.3	3.9

TABLE 7

ANALYSIS OF COVARIANCE ON LABELING AND DEMONSTRATION

TRANSFER SCORES OF THREE TREATMENT GROUPS

Source of Variation	df	Demonstration MS	Demonstration F	Labeling MS	Labeling F	Total MS	Total F
Treatments	2	1.7	0.3	23.3	2.4	32.1	1.5
Error	31	6.1		9.6		21.1	

(Pretest used as covariate)

TABLE 8

MEANS AND STANDARD DEVIATIONS OF SCORES ON CRITERION MEASURES FOR THREE LEVELS OF TREATMENT BY TWO LEVELS OF LANGUAGE EXPOSURE[1]

		Spanish Pretest		Spanish Posttest		English Pretest		English Posttest	
Treatment	No.	X	s	X	s	X	s	X	s
1/Spanish									
A[1]	7	1.4	1.2	7.1	1.4	1.3	0.9	4.3	3.4
B	5	1.8	1.3	4.4	3.9	3.0	1.8	6.8	1.9
2/English									
A	6	2.3	1.9	6.1	2.5	1.5	1.2	5.5	3.2
B	5	1.0	0.6	2.0	1.4	1.8	1.4	5.6	4.3
3/Bilingual									
A	4	1.8	1.1	5.3	2.2	1.3	0.9	3.5	1.9
B	8	0.5	0.7	4.8	2.9	3.3	2.0	6.9	3.6

[1]A: No exposure to English in the home.
B: Exposure to English in the home.

TABLE 9

FACTORIAL ANALYSES OF COVARIANCE OF SCORES ON THE POSTTEST FOR THREE LEVELS OF TREATMENT BY TWO LEVELS OF LANGUAGE EXPOSURE[1]

(For each analysis the comparable pretest score was used as covariate)

Source	df	Spanish $\bar{X}$	Spanish F	English $\bar{X}$	English F
T	2	8.75	1.45	2.38	0.26
L	1	30.10	5.00*	3.00	0.33
T X L	2	10.46	1.74	1.64	0.18
Error	28	6.02		9.01	

*$p < .05$

[1]English used or not used in the home.

Results

Criterion Test One: Direct Posttest, Spanish and English

Results of the analyses of the differences between the four treatment groups on the direct posttest can be found in Tables 1, 2, and 3. An analysis of covariance on posttest scores for four treatment groups using the pretest as covariate was performed. A significant difference was found at the .01 level for labeling, demonstrating and total posttest. For the posttest demonstration, $F = 6.2$, df 3/43; for the posttest on labeling, $F = 7.2$, df 3/43; and for total posttest, $F = 8.79$, df 3/43.

The Newman-Keuls test (See Table 3) was computed on adjusted posttest total means and significant differences at the .01 level were found between T-1 and T-4, T-2 and T-4, and T-3 and T-4. Significant differences at the .01 level in posttest demonstration were found between T-1 and T-4, and T-3 and T-4. Also, for posttest labeling, significant differences at the .01 level were found between T-1 and T-4, T-2 and T-4, and T-3 and T-4.

Criterion Test Two: Test in Opposite Language

The results of the analyses of the differences between three treatment groups on the opportunity to learn in the language opposite from instruction can be found in Tables 4 and 5. An analysis of covariance using the pretest as covariate was performed and no significant differences were found between groups.

Criterion Test Three: Transfer Test

Results of the analyses of the differences between three treatment groups on the transfer test can be found in Tables 6 and 7.

An analysis of covariance on transfer scores for three treatment groups using the pretest scores as covariate was performed. No significant differences were found between groups.

Exposure to English in the Home Analyses

A 2 x 3 factorial analysis of covariance using the pretest as covariate was performed. (See Table 9) The design was composed of two levels of language exposure (English spoken or not spoken in the home) and three levels of treatment. There was significant difference found between language exposure in the home and Spanish labeling at the .05 level (F = 5.00, df 1/28). For purposes of reference, Table 8 presents means and standard deviations for Spanish and English labeling, grouped by language exposure for each of the three treatment groups.

Conclusion and Discussion

The purpose of this study was to investigate the effect of instruction in Spanish only, English only and Spanish and English combined on Mexican-American Headstart four-year-olds in the learning of five prepositional concepts. A child with a Spanish surname does not assure him of bilingual ability. Many Mexican-American parents refrain from using Spanish in the home in hopes that the child will make a smoother transition into the Anglo culture. In reverse, many Mexican-American parents refrain from using any English in the home because they want the child to be loyal to his heritage and culture. In the latter situation the child may have older siblings who go to public school and speak English, further complicating the situation. In this study the children ranged from speaking Spanish only to

speaking English only.

The first hypothesis, predicting no significant differences in performance in labeling and demonstration on an immediate posttest in Spanish and English when children are instructed in Spanish only, English only, bilingually, or who receive no special instruction, was rejected in that the children receiving instruction obtained scores significantly higher than the children in the control group (See Tables 1, 2, and 3).

This accomplishment was exceptional for several reasons. The instruction was administered through programmed instruction, a structured type of teaching via tape recorder that the children had not previously experienced. The task required was to learn five positional prepositions by demonstrating the concept upon request in two languages, plus labeling in two languages. The learning period was thirty minutes in all, under changing conditions. The instruction took place in a room at a nearby park on the first day, but some of the teachers felt the walk back and forth was disrupting and instruction continued for the remaining two days outside, behind the Head-start building with distracting noise from the children playing in front of the building.

The three treatment groups showed excellent ability to adapt to new materials during the transfer period of the posttest when they were required to mark one out of three choices in a booklet ranging from eight to sixteen pages. None of them had previously marked in a booklet for such purposes and they accomplished this task with only four pages of practice.

It might be presumed that children receiving instruction bilingually would posttest superior in both languages to those receiving instruction in only one language. The posttest scores indicated no significant differences between the three treatment groups.

The second and third hypotheses predicting no significant differences in performance in labeling and demonstration on an immediate criterion test in the language opposite from instruction or on a transfer test in the language of instruction were both accepted.

Hypothesis 4, predicting no significant differences for performance in labeling and demonstration on an immediate posttest as a function of language used in the home, was rejected. Exposure to English or no English in the home seemed to be affecting how the child scored on the posttest independent of the type of language of instruction he was given. Language exposure in the home was obtained from teacher-parent interviews and the language the child used in communication at the Headstart center. As would be expected, it was found that children exposed to English in the home (indicated by "B" on Table 8) scored higher on the English posttest across all three treatment groups, and the children exposed to Spanish in the home (group "A" on Table 8) scored higher on the Spanish posttest across all three treatment groups.

Compare T-1 and T-2 in "A" group only. T-1 was trained in Spanish and T-2 was trained in English. The means of both groups are lower on the English posttest than on the Spanish. (See Table 8) T-2, trained in English, has a higher mean in Spanish (6.17) than in English (5.50). Evidently these children scored better because of

exposure to Spanish only in the homes and the treatment made little difference. Similarly in Group "B", the children taught in Spanish only posttested higher in English (mean scores, 6.80 to 4.40) indicating that exposure to English in the home was more influential than the treatment.

The exposure to English in the home group "B", when trained in Spanish, improved their Spanish scores, without significantly lowering their English posttest scores. If there is a desire to maintain the bilingual aspect in their culture and training, then obviously students must get continued training in Spanish.

There is a definite pattern of the English in the home students, (Group "B") scoring higher in English than in Spanish. There is also a pattern of Spanish language at home children (Group "A") scoring higher in Spanish than in English.

The study is obviously limited by sampling practices and restricted treatment time. Yet the data obtained indicate that environment of the learner is a critical factor in bilingual instruction. Rather than prescribing a simple desirable treatment for all Mexican-American children, specific identification of learners with certain competencies, for instance, those related to language of the home, should be integrated with those instructional sequences which maximize learning.

REFERENCES

BIBLIOGRAPHY

Bloom, B. S. Stability and Change in Human Characteristics. New York: John Wiley & Sons, 1964.

Boehm, L. Moral judgment: a cultural and subcultural compari on with some of Piaget's research conclusions. International Journal of Psychology, 1966, 1, 143-150.

Brookover, W. B., et al. Self-concept of ability and school achievement. In H. L. Miller, (Ed.), Education for the disadvantaged. New York: Free Press, 1967.

Bruner, J., Oliver, R., & Greenfield, P. Studies in Cognitive Growth. New York: John Wiley & Sons, Inc., 1966.

Bruno, L. Your Public Schools, 6 (6), March-April, 1968.

Bumpass, Faye. New York Tim s, June 18, 1967.

Burma, J. H. Spanish-speaking children. In E. Ginzberg, (Ed.), The Nation's Children. New York: Columbia University Press, 1960.

Carroll, J. Words, meanings and concepts. In Janet Emig, J. Fleming, & Helen Popp (Eds.), Language and Learning. New York: Harcourt, Brace & World, 1966.

Carlson, N. B. & Henderson, N. The intelligence of American children of Mexican parentage. Journal of Abnormal and Social Psychology, 1950, 45, 544-551.

Coffman, W. E. Developing tests for the culturally different. In H. L. Miller, (Ed.), Education for the Disadvantaged. New York: Free Press, 1967.

Cordasco, F. M. The challenge of the non-English-speaking child in American schools. School and Society, 1968, 96, 198-201.

Darcy, N. T. The performance of bilingual Puerto Rican children on verbal and non-language tests of intelligence. Journal of Educational Researc , 1952, 45, 499-506.

Demos, G. D. Attitudes of Mexican-American and Anglo groups toward education. Journal of Social Psychology, 1962, 57, 249-256.

Deutsch, Cynthia P. Auditory discrimination and learning: social factors. Merrill-Palmer Quarterly of Behavior and Development, 1964, 10, 277-296.

Deutsch, M. Nursery education: the influence of social programming on early development. Journal of Nursery Education, 1963 (A), 18 (3).

Deutsch, M. The disadvantaged child and the learning process. In A. H. Passow (Ed.), Education in Depressed Areas. New York: Bureau of Publication, Teachers College, Columbia University, 1963 (B), 163-179.

Deutsch, M. Early social environment: its influence on school adaption. In D. Schreiber (Ed.), The School Dropout. National Education Association, Washington, D. C., 1964 (A), 89-100.

Deutsch, M. Role of social class in language development and cognition. Paper presented at Annual Meeting of American Orthopsychiatric Association, April 1964 (B).

Deutsch, M. & Brown, B. Social influences in Negro-white intelligence differences. Journal of Social Issues, 1964, 20, 24-35.

Diaz-Guerrero, R. Socio-cultural premises, attitudes, and cross-cultural research. International Journal of Psychology, 1967, 2 (2), 79-87.

Fleiss, Bernice H. A new venture in New York City. New York: NAEYC Publication #112, 1966.

Forbes, J. D. Mexican-Americans, A Handbook for Educators, Educational Systems Corp., 1717 Massachusetts Ave., N.W., Ste. 502, Washington, D. C., 20036.

Frijda, N. & Jahoda, G. On the scope and methods of cross-cultural research. International Journal of Psychology, 1966, 1 (2), 109-127.

Fritz, R. & Rankin, N. The English handicap of junior high school pupils from foreign speaking homes and remedial suggestions. Journal of Educational Research, 1934, 27, 412-421.

Gaarder, B. Organization of the bilingual school. Journal of Social Issues, 1967, 23 (2), 110-120.

Gagne, R. M. Verbal instructions as experimental variables in learning. Paper presented as part of Symposium on Meaningful Verbal Learning, Div. 15, American Psychological Association, September 1964.

Gagne, R. M. The Conditions of Learning. New York: Holt, Rinehart & Winston, Inc., 1965.

Galbraith, C. K. Spanish-speaking children communicate. Childhood Education, 1965, 42, 70-74.

Gill, L. J. & Spilka, B. Some non-intellectual correlates of academic achievement among Mexican-American secondary school students. Journal of Educational Psychology, 1962, 53, 144-149.

Goldstein, K. M. & Chorost, S. B. A preliminary evaluation of nursery school experience on the later school adjustment of culturally disadvantaged children. Cooperative Research Project No. S-323, 1966. (Also presented at APA, New York City, 1966.)

Holland, W. R. Language barrier as an educational problem of Spanish-speaking children. In S. Webster (Ed.), The Disadvantaged Learner. San Francisco: Chandler, 1966.

Howard, J. L. & Plant, W. T. Psychometric evaluation of an Operation Headstart program. Journal of Genetic Psychology, 1967, 111 (2), 281-288.

Imedadze, N. V. On the psychological nature of child speech formation under condition of exposure to two languages. International Journal of Psychology, 1967, 2 (2), 129-132.

Jensen, A. R. Learning abilities in Mexican-American and Anglo-American children. California Journal of Educational Research, 1961, 12, 147-159.

Jensen, A. R. Cumulative deficit in compensatory education. Journal of School Psychology, 4 (3), Spring 1966.

Jensen, A. R. The culturally disadvantaged: Psychological and educational aspects. Educational Research, 1967, 10 (1), 4-20.

John, Vera P. The intellectual development of slum children: some preliminary findings. American Journal of Orthopsychiatry, 1963, 33, 215-221.

John, Vera P. A Brief Survey of Research on the Characteristics of Children from Low Income Backgrounds. Prepared for the U. S. Commissioner on Education, August 1964.

John, Vera P. & Goldstein, L. S. Social context of language acquisition. Merrill-Palmer Quarterly, 1964, 10, 265-275.

Johnson, G. B., Jr. The origin and development of the Spanish attitude toward the Anglo and the Anglo attitude toward the Spanish. Journal of Educational Psychology, 1950, 41, 428-439.

Johnson, G. B., Jr. The relationship existing between bilingualism and racial attitude. Journal of Educational Psychology, 1951, 42, 357-365.

Jones, W. R. A critical study of bilingualism and non-verbal intelligence. British Journal of Educational Psychology, 1960, 30, 71-77.

Kansas City Midtown Pre-School. Education and the Disadvantaged Family. Report to the Board of Education of Kansas City, Missouri, 1964-1965.

Klienberg, O. Negro-white differences in intelligence test performance: a new look at an old problem. American Psychologist, 1963, 18, 198-203.

Kloss, H. Bilingualism and Nationalism. Journal of Social Issues, 1967, 2, 39-47.

Krugman, M. The culturally deprived child in school. National Education Association Journal, 1961, 50, 22-23.

Lambert, W. E. A social psychology of bilingualism. Journal of Social Issues, 1967, 2, 91-109.

Lerea, L. & Kohut, S. M. A comparative study of monolinguals and bilinguals in a verbal task performance. Journal of Clinical Psychology, 1961, 17, 49-52.

Linn, G. B. Linguistic functions of bilingual Mexican American children. Journal of Genetic Psychology, 1967, 111 (2), 183-193.

Maccoby, M. & Modiano, N. On culture an equivalence: 1, In Bruner, J., Oliver, R., & Greenfield, P., et al, Studies in Cognitive Growth, New York: John Wiley & Sons, Inc., 1956.

Mackler, B. & Giddings, M. Cultural deprivation: a study in mythology. In H. L. Miller, (Ed.), Education for the Disadvantaged. New York: Free Press, 1967.

Macnamara, J. Bilingualism and Primary Education: A Study of Irish Experience. Edinburgh, Scotland: Edinburgh U. Press, 1966.

Macnamara, J. The effects of instruction in a weaker language. Journal of Social Issues, 1967, 2, 120-134.

Madsen, M. C. The development of cooperative and competitive behavior of children in Mexico and the United States. Paper presented at Biennial Meeting, Society for Research in Child Development, Santa Monica, Calif., March 1969.

Manual, H. T. Use of parallel tests in the study of foreign language teaching. Educational and Psychological Measurements, 1953, 13, 431-36.

Manuel, H. A comparison of Spanish-speaking and English-speaking children in reading and arithmetic. Journal of Applied Psychology, 1935, 19, 189-202.

The Mexican-American Affairs Unit of the U. S. Office of Education. The Mexican-American: Quest for Equality. A report by the National Advisory Committee on American Education, 1968.

McDonald, C. Prekindergarten Program, El Rancho Unified School District, Pico Rivera, Calif., 1965.

McNeil, J. D. Adapting a beginning reading program for Spanish-speaking children. Experiments in Kindergarten Reading, Southwest Regional Laboratory for Educational Research and Development, Inglewood, Calif., August 1968.

Minuchin, P. & Biber, B. A child development approach to language in the preschool disadvantaged child, Paper presented at meeting of Society for Research in Child Development, April 1967.

Modiano, N. National or mother language in beginning reading: a comparative study. Research in Teaching English, 1968, 1, 32-43.

Saer, D. J. The effect of bilingualism on intelligence, British Journal of Psychology, 1923, 14, 25-38.

Schwartz, Audrey, J. Comparative values and achievement of Mexican-American and Anglo pupils. CSE Report No. 37, Center for the Study of Evaluation, UCLA Graduate School of Education, Los Angeles, Calif., February 1969.

Skemp, R. R. Teaching of mathematics in the elementary school. In H. Klausmeier & C. Harris (Eds.), Analyses of Concept Learning. New York: Academic Press, 1966.

Smith, M. E. Some light on the problem of bilingualism as found from a study of the progress in mastery of English among preschool children of non-American ancestry in Hawaii. Genetic Psychological Monologue, 1939, 21, 119-284.

Texas Education Agency. Preschool instructional program for non-English speaking children, Bulletin 642. March 1964, Texas Education Agency, Austin, Texas.

Travers, R. W. Essentials of Learning: An Overview for Students of Education, (2nd ed.). New York: Macmillan Co., 1967.

APPENDIX A

Treatment 1 SPANISH Day 1

DIRECTIONS	COMMENTARY	FEEDBACK
	Ola. Vamos a jugar un juego de palabra, pero antes de hacerlo, oyé.	
	(SONG ABOUT A DOG BARKING)	
	¿Puedes ladrar como un perro? Dilo conmigo..ARF ARF. Dilo, conmigo..ARF ARF. Otra vez. Dilo..ARF ARF. Dilo..ARF ARF	
Give checker	Ahora, juguemos. Aquí esta una ficha. Dilo, ficha.	ficha
Give box	Aquí está una cajita. Dilo, cajita.	cajita
Place under	Mira. Yo pongo la ficha debajo de la cajita. Dilo, debajo.	debajo
Place under	Tu pon la ficha debajo de la cajita. Dilo, debajo.	debajo
Place clip under	Mira. Yo pongo esto debajo. Dilo, debajo.	debajo
Give clip	Aquí. Ponlo debajo. Dilo, debajo. (CHECK AND CORRECT)	debajo
Place bobbypin under	Yo pongo esto debajo. Dilo, debajo.	debajo
Give bobbypin	Aquí. Ponlo debajo. Dilo, debajo. (CHECK AND CORRECT)	debajo
	(REMOVE PROPS)	
Place checker under	¿Dónde está la ficha?	debajo
	Dilo, debajo.	debajo
Place clip under	Yo pongo esto...¿Dónde está?	debajo

	Dilo, debajo.	debajo
Place bobbypin under	Yo pongo esto....¿Dónde está?	debajo
	Dilo, debajo.	
	oyé.	
	(ONE MINUTE OF ANIMAL IMITATIONS)	
Give box	Aquí.	
Place checker inside	Mira. Yo pongo la ficha adentro. Dilo, adentro.	adentro
Give checker	Aquí. Tu pon la ficha adentro. Dilo, adentro.	adentro
	(CHECK AND CORRECT)	
Place clip inside	Mira. Yo pongo esto adentro. Dilo, adentro.	adentro
Give clip	Aquí. Tu ponlo adentro. Dilo, adentro.	adentro
Place money inside	Yo pongo esto adentro. Dilo, adentro.	adentro
Give money	Aquí. Tu ponlo adentro. Dilo, adentro.	adentro
	(REMOVE ALL PROPS)	
Place checker inside box	¿Dónde está la ficha?	adentro
	Dilo, adentro.	adentro

Treatment 1 SPANISH Day 1

Place clip inside	Yo pongo esto....¿Dónde está?	adentro
	Dilo, adentro.	adentro
Place money inside	Yo pongo esto....¿Dónde está?	adentro
	Dilo, adentro.	adentro
Give box and checker	Aquí. Ponlo debajo. (CHECK AND CORRECT)	
Give clip	Aquí. Ponlo adentro. (CHECK AND CORRECT)	
Give money	Aquí. Ponlo debajo. (CHECK AND CORRECT)	
Give bobbypin	Aquí. Ponlo adentro. (CHECK AND CORRECT)	
Place checker under.... inside....under....inside	Mira. La ficha está debajo...Está a dentro...debajo... adentro.	
	Dame tu ficha. Dame tu cajita. Gracias.	

Treatment 2 ENGLISH Day 1

	Hello. We are going to play a word game - but before we do, listen.	
	(SONG ABOUT A DOG BARKING)	
	Can you make a sound like a dog? Say it with me..ARF ARF. Say it with me..ARF ARF. Again. Say it..ARF ARF. Say it..ARF ARF.	
Give checker	Now, let's play the game. Here is a checker. Say checker.	checker
Give box	Here is a box. Say it..box.	box
Place under	Look. I put the checker under the box. Say under.	under
Place under	You put the checker under the box. Say under.	under
Place clip under	Look. I put this under. Say under.	under
Give clip	Here. You put it under. Say under (CHECK AND CORRECT).	under
Place bobbypin under	I put this under. Say under.	under
Give bobbypin	Here. You put it under. Say under.	under
	(REMOVE PROPS)	
Place checker under	Where is the checker?	under
	Say under.	
Place clip under	I put this....Where is it?	under

Treatment 2 ENGLISH Day 1

	Say under.	under
Place bobbypin under	I put this....Where is it?	under
	Say under.	
	Listen.	
	(ONE MINUTE OF ANIMAL IMITATIONS)	
Give box	Here.	
Place checker inside	Look. I put the checker inside. Say inside.	inside
Give checker.	Here. You put the checker inside. Say inside.	inside
	(CHECK AND CORRECT)	
Place clip inside	Look. I put this inside. Say inside.	inside
Give clip	Here. You put it inside. Say inside.	inside
Place money inside	I put this inside. Say inside.	inside
Give money	Here. You put it inside. Say inside.	inside
	(REMOVE ALL PROPS)	
Place checker inside box	Where is the checker?	inside
	Say inside.	

Treatment 2 ENGLISH Day 1

Place clip inside	I put this...Where is it?	inside
	Say inside.	inside
Place money inside	I put this....Where is it?	inside
	Say inside.	inside
Give box and checker	Here. Put it under. (CHECK AND CORRECT)	
Give clip	Here. Put it inside. (CHECK AND CORRECT)	
Give money	Here. Put it under. (CHECK AND CORRECT)	
Give bobbypin	Here. Put it inside. (CHECK AND CORRECT)	
Place checker under.... inside....under....inside	Look. The checker is under...It is inside....under.... inside.	
	Give me your checker. Give me your box. Thank you.	

Treatment 3 SPANISH-ENGLISH Day 1

Ola. Hello. Vamos a jugar un guego de palabra. We are going to play a word game. Pero, antes de hacerlo...But before we do....Oye. Listen.

(SONG ABOUT A DOG WHO BARKS)

¿Puedes ladrar como un perro? Can you make a sound like a dog? Dilo conmigo..ARF ARF. Say it with me..ARF ARF. Otra vez. Again. Dilo..ARF ARF. Say it..ARF ARF. Ahora, juguemos. Now, let's play the game.

Give checker	Aquí está una ficha. Dilo, ficha. Here is a checker. Say checker.	
Give box	Aquí está una cajita. Dilo, cajita. Here is a box. Say box.	
Place under	Mora. Look. Yo pongo la ficha debajo de la cajita. Dilo, debajo.	debajo
Place under	I put the checker under the box. Say under.	under
Place clip under	Yo pongo esto debajo. Dilo, debajo.	debajo
Give clip	Aquí. Ponlo debajo. Dilo, debajo.	debajo
Place bobbypin under	I put this under. Say under.	under
Give bobbypin	Here. You put it under. Say under.	under

(REMOVE PROPS)

Place checker under	¿Dónde está la ficha?	debajo
	Dilo, debajo.	debajo
	Where is the checker?	under
	Say under.	under

Treatment 3 SPANISH-ENGLISH Day 1

Place clip under	Yo pongo esto...¿Dónde está?	debajo
	Dilo, debajo.	debajo
Place bobbypin under	I put this....Where is it?	under
	Say under.	under
	Oye. Listen. (ONE MINUTE OF ANIMAL IMITATIONS)	
Give box	Aquí. Here.	
Place checker inside	Yo pongo la ficha adentro. Dilo, adentro.	adentro
	I put the checker inside. Say inside.	inside
Give checker	Aquí. Tu pon la ficha adentro (CHECK AND CORRECT).	
	Dilo, adentro.	adentro
Place clip inside	I put this inside. Say inside.	inside
Give clip	Here. You put it inside. (CHECK AND CORRECT) Say inside.	inside
Place money inside	Yo pongo esto adentro. Dilo, adentro.	adentro
Give money	Here. You put it inside. Say inside.	inside
	(REMOVE PROPS)	
Place checker inside box	¿Dónde está la ficha?	adentro
	Dilo, adentro.	adentro
Place clip inside	I put this....Where is it?	inside
	Say, inside.	inside

Treatment 3 SPANISH-ENGLISH Day 2

Place money inside	Yo pongo esto....¿Dónde está? Dilo, adentro.	adentro adentro
Give box and checker	Aquí. Ponlo debajo. Put it under. (CHECK AND CORRECT)	
Give clip	Aquí. Ponlo adentro. Put it inside. (CHECK AND CORRECT)	
Give money	Here. Put it under. (CHECK AND CORRECT)	
Give bobbypin	Aquí. Ponlo debajo. (CHECK AND CORRECT)	
Place checker under.... inside....under....inside	Dilo conmigo. debajo...adentro...debajo...adentro. Say it with me. under...inside...under...inside.	

Treatment 1 SPANISH Day 2

Give checker and box, place checker under.	Aprendiste a poner algo debajo. Dilo, debajo.	debajo
Place inside	Y adentro. Dilo, adentro.	adentro
	Tu ponlo debajo. Dilo, debajo.	debajo
	Tu ponlo adentro. Dilo, adentro.	adentro
Place puppet on hand	Ahora mira. Aquí está Pepe.	
Place under with puppet	Pepe lo pone debajo. Delo, debajo.	debajo
Place inside	Pepe lo pone adentro. Dilo, adentro.	adentro
Place on top	Ahora mira. Pepe lo pone...encima. Dilo, encima.	encima
	Ponlo encima. Dilo, encima.	encima
Place horse on top	Pepe pone esto encima. Dilo, encima.	encima
Give horse	Aquí. Tu pon esto encima. Dilo, encima.	encima
Place pencil on top	Pepe pone esto encima. Dilo, encima.	encima
Give pencil	Aquí. Pon esto encima. Dilo, encima.	encima
Using checker and box, place under...on top... inside...under...on top...inside	(REMOVE ALL PROPS) Dilo conmigo. debajo...encima...adentro. Otra vez. debajo...encima...adentro.	

Treatment 1 SPANISH Day 2

Place under	¿Dónde está?	debajo
	Dilo, debajo.	debajo
Place on top	¿Dónde está?	encima
	Dilo, encima.	encima
Place inside	¿Dónde está?	adentro
	Dilo, adentro.	adentro
	Oye (ONE MINUTE OF SOUND EFFECTS).	
Give checker and box	Ponlo debajo.	(WAIT, DEMONSTRATE)
	Dilo, debajo.	debajo
	Ponlo encima.	(WAIT, DEMONSTRATE)
	Dilo, encima.	encima
	Ponlo adentro.	(WAIT, DEMONSTRATE)
	Dilo, adentro.	
Place puppet on hand, place in back	Ahora mira. Aquí está Pepe. Pepe lo pone...detrás. Tu ponlo detrás. Dilo, detrás.	detrás
Place money in back	Pepe pone esto detrás. Dilo, detrás.	detrás

Treatment 1 SPANISH Day 2

Give money	Aquí. Tu pon esto detrás. Dilo, detrás.	detrás
Place pencil in back	Pepe pone esto detrás. Dilo, detrás.	detrás
Give pencil	Aquí. Tu pon esto detrás. Dilo, detrás.	detrás
Give horse	Aquí. Tu pon esto detrás. Dilo, detrás.	detrás
Using pencil and box, place in back...on top.. under...inside...in back ..on top..under..inside	(REMOVE ALL PROPS) Dilo conmigo. detrás...encima...debajo...adentro. Otra vez. detrás...encima...debajo...adentro. (TURN OFF TAPE, STAND UP AND STRETCH)	
Place in back	¿Dónde está? Dilo, detrás.	detrás detrás
Place on top	¿Dónde está? Dilo, encima.	encima encima
Place under	¿Dónde está? Dilo, debajo.	debajo debajo
Place inside	¿Dónde está? Dilo, adentro.	adentro adentro
Give pencil and box	Aquí. Ponlo detrás (CHECK). Ponlo debajo (CHECK). Ponlo encima (CHECK). Ponlo adentro (CHECK). (CORRECT POSITIONS IF NECESSARY) Dame tu lápiz. Dame tu cajita. Grácias.	

Treatment 2 ENGLISH Day 2

Give checker and box, place checker under.	You learned to put something under, Say, under.	under
Place inside	And inside. Say, inside.	inside
	You put it under. Say, under.	under
	You put it inside. Say, inside.	inside
Place puppet on hand	Now look. This is Pepe.	
Place under with puppet	Pepe puts it under, Say, under.	under
Place inside	Pepe puts it inside. Say, inside.	inside
Place on top	Now look. Pepe puts it on top. Say, on top.	on top
	You put it on top. Say, on top.	on top
Place horse on top	Pepe puts this on top. Say, on top.	on top
Give horse	Here. You put this on top. Say, on top.	on top
Place pencil on top	Pepe puts this on top. Say, on top.	on top
Give pencil	Here. You put this on top. Say, on top.	
Using checker and box, place under...on top... inside...under...on top...inside	(REMOVE ALL PROPS) Say it with me. under...on top...inside. Again. under... on top...inside.	

Treatment 2 ENGLISH Day 2

Place under	Where is it?	under
	Say, under.	under
Place on top	Where it it?	on top
	Say, on top.	on top
Place inside	Where is it?	inside
	Say, inside.	inside
	Listen (ONE MINUTE OF SOUND EFFECTS).	
Give checker and box	Put it under.	(WAIT, DEMONSTRATE)
	Say, under.	under
	Put it on top.	(WAIT, DEMONSTRATE)
	Say, on top.	on top
	Put it inside.	(WAIT, DEMONSTRATE)
	Say, inside.	inside
Place puppet on hand, place in back	Now look. Here is Pepe. Pepe puts it...in back. You put it in back. Say, in back.	in back
Place money in back	Pepe puts this in back. Say, in back.	in back

Treatment 2 ENGLISH Day 2

Give money	Here. You put this in back. Say, in back.	in back
Place pencil in back	Pepe puts this in back. Say, in back.	in back
Give pencil	Here. You put this in back. Say, in back.	in back
Give horse	Here. You put this in back. Say, in back.	in back
	(REMOVE ALL PROPS)	
Using a pencil and box, place in back...on top... under...inside...in back...on top...under... inside	Say it with me...in back...on top...under...inside... Again. in back...on top...under...inside.	
	(TURN OFF TAPE AND STAND UP AND STRETCH)	
Place in back	Where is it? Say, in back.	in back in back
Place on top	Where is it? Say, on top.	on top on top
Place under	Where is it? Say, under.	under under
Place inside	Where is it? Say, inside.	inside
Give pencil and box	Here. Put it in back (CHECK). Put it under (CHECK). Put it on top (CHECK). Put in inside (CHECK). (CORRECT POSITIONS IF NECESSARY) Give me your pencil. Give me your box. Thank you.	

Treatment 3 SPANISH-ENGLISH Day 2

Give checker and box, place checker under.	Ola. Hello. Aprendiste a poner algo debajo. Dilo, debajo. Y adentro. Dilo, adentro.	debajo adentro
	You learned to put something under. Say, under. And inside. Say, inside.	under inside
	Tu ponlo debajo (CHECK AND CORRECT). Dilo, debajo. You put it inside (CHECK AND CORRECT). Say, inside.	debajo inside
Place puppet on hand	Mira. Look. Aquí está Pepe. Here is Pepe.	
Place under with puppet	Pepe lo pone debajo. Dilo, debajo. Say, under.	debajo under
Place inside	Pepe puts it inside. Say, inside. Dilo, adentro.	inside adentro
Place on top with puppet	Look. Pepe puts it on top. Say, on top.	on top
Place horse on top	Pepe pone esto encima. Dilo, encima.	encima
Give horse	Aqui. Tu pon esto encima. Dilo, encima.	encima
Place pencil on top	Here, you put this on top. Say, on top.	on top
Give pencil	Here, you put this on top. Say, on top.	on top
	(REMOVE ALL PROPS)	
Using checker and box, place under...on top... inside...under...on top... inside	Dilo conmigo. Say it with me. debajo...encima...adentro. under...on top...inside.	

Treatment 3 SPANISH-ENGLISH Day 2

Place under	¿Dónde está? Where is it?	under
	Say, under.	under
	Dilo, debajo.	debajo
Place on top	Where is it?	on top
	Say, on top.	on top
	Dilo, encima.	encima
Place inside	¿Dónde está? Where is it?	inside
	Say, inside.	inside
	Dilo, encima.	encima
	Oye. Listen. (SONG)	
Give checker and box	Here. Aquí. Ponlo debajo. Put it under. Say, under.	under
	Dilo, debajo.	debajo
	Ponlo encima. Put it on top. Say, on top.	on top
	Dilo encima.	encima
	Ponlo adentro. Put it inside. Say, inside.	inside
	Dilo, adentro.	adentro
Place puppet on hand and place in back	Now look. Pepe lo pone detrás. Tu ponlo detras.	
	Dilo, detrás.	detrás
Place puppet on hand and place in back	Pepe puts it in back. You put it in back.	
	Say, in back.	in back
Place money in back	Pepe pone esto...detrás. Dilo...detrás.	detrás

Treatment 3 SPANISH-ENGLISH Day 2

Give money	Aquí. Tu pon esto detrás. Dilo...detrás.	detrás
Place pencil in back	Pepe puts this...in back. Say, in back.	in back
Give pencil	Here. You put this in back (CHECK). Say, in back.	in back
Give horse	Aquí. Ponlo detrás (CHECK). Dilo, detrás.	detrás
Place pencil and box in back...on top... under...inside...in back ..on top..under..inside	Dilo conmigo. debajo...encima...adentro...detrás. Say it with me. under...on top...inside...in back.	
Place in back	¿Dónde está? Where is it?	detrás in back
Place on top	¿Dónde está? Where is it?	encima on top
Place under	¿Dónde está? Where is it?	debajo under
Place inside	¿Dónde está? Where is it?	adentro inside
Give pencil and box	Aquí. Here. Ponlo encima. Put it on top (CHECK, CORRECT). Ponlo detrás. Put it in back (CHECK, CORRECT). Ponlo debajo. Put it under (CHECK, CORRECT). Ponlo adentro. Put it inside (CHECK, CORRECT).	

Treatment 1 SPANISH Day 3

Using checker and box, place under, in back, on top, inside. Under, in back, on top, inside	Ola. Recuerda, aprendiste a poner algo debajo...detrás ...encima...adentro. debajo...detrás...encima...adentro. Dilo conmigo. debajo...detrás...encima...adentro.	
Show pumpkin	Aquí está una calabasa. Dilo, calabasa.	calabasa
Place under, in back, on top, inside	You pongo la ficha debajo...detrás...encima...adentro.	
Give pumpkin and pencil	Aquí está una calabasa para tu, y un lápiz. Dilo, lápiz.	lápiz
	Pon el lápiz detrás (CHECK AND CORRECT). Dilo, detrás.	detrás
	Ponlo debajo (CHECK AND CORRECT). Dilo, debajo.	debajo
	Ponlo encima (CHECK AND CORRECT). Dilo, encima.	encima
	Ponlo adentro (CHECK AND CORRECT). Dilo, adentro.	adentro
Place pencil in front	Mira. You lo pongo...en frente. Dilo, en frente.	en frente
	Ponlo en frente (CHECK AND CORRECT). Dilo, en frente.	en frente
Give money	Aquí. Ponlo en frente. Dilo, en frente.	en frente
Give paper	Aquí. Ponlo en frente. Dilo, en frente.	en frente
Place paper in front	¿Dónde está?	en frente
Give auto	Aquí. Ponlo en frente. Dilo, en frente.	en frente
Place auto in front	¿Dónde está?	en frente

Treatment 1 SPANISH Day 3

	Oye. (SONG ABOUT THE FARM)	
Give pumpkin and money	Aquí. Ponlo debajo (CHECK AND CORRECT).	
Give horse	Aquí. Ponlo detrás (CHECK AND CORRECT).	
Give paper	Aquí. Ponlo adentro (CHECK AND CORRECT).	
Give auto	Aquí. Ponlo encima (CHECK AND CORRECT).	
	(REMOVE ALL PROPS)	
Place under	Mira. Yo pongo el lápiz...¿Dónde está?	debajo
Place in back	You lo pongo...¿Dónde está?	detrás
Place in front	Yo lo pongo...¿Dónde está?	en frente
Place on top	Yo lo pongo...¿Dónde está?	encima
Place inside	Yo lo pongo...¿Dónde está?	adentro
Give pumpkin and pencil	Pon el lápiz debajo (CHECK AND CORRECT). ¿Dónde está?	debajo
	Ponlo detrás (CHECK AND CORRECT). ¿Dónde está?	detrás
	Ponlo en frente (CHECK AND CORRECT). ¿Dónde está?	en frente
	Ponlo encima (CHECK AND CORRECT). ¿Dónde está?	encima
	Ponlo adentro (CHECK AND CORRECT). ¿Dónde está?	adentro

Treatment 2 ENGLISH Day 3

Using checker and box, place under, in back, on top, inside. Under, in back, on top, inside	Hello. Remember, you learned to put something under... in back...on top...inside. Under...in back...on top... inside. Say it with me. Under...in back...on top... inside.	
Show pumpkin	Here is a pumpkin. Say, pumpkin.	pumpkin
Place under, in back, on top, inside	I put the checker under...in back...on top...inside.	
Give pumpkin and pencil	Here is a pumpkin for you, and a pencil. Say, pencil.	pencil
	Put the pencil in back (CHECK AND CORRECT). Say, in back.	in back
	Put it under (CHECK AND CORRECT). Say, under.	under
	Put it on top (CHECK AND CORRECT). Say, on top.	on top
	Put it inside (CHECK AND CORRECT). Say, inside.	inside
Place pencil in front	Look. I put it...in front. Say, in front.	in front
	Put it in front (CHECK AND CORRECT). Say, in front.	in front
Give money	Here. Put it in front. Say, in front.	(WAIT, DEMONSTRATE)
Give paper	Here. Put it in front. Say, in front.	in front
Place paper in front	Where it it?	in front
Give auto	Here. Put it in front. Say, in front.	in front
Place auto in front	Where it it?	in front

Treatment 2 ENGLISH Day 3

	Listen. (SONG ABOUT THE FARM)	
Give pumpkin and money	Here. Put it under (CHECK AND CORRECT).	
Give horse	Here. Put it in back (CHECK AND CORRECT).	
Give paper	Here. Put it inside (CHECK AND CORRECT).	
Give auto	Here. Put it on top (CHECK AND CORRECT).	
	(REMOVE ALL PROPS)	
Place under	Look. I put the pencil...Where is it?	under
Place in back	I put it...Where is it?	in back
Place in front	I put it...Where is it?	in front
Place on top	I put it...Where is it?	on top
Place inside	I put it...Where is it?	inside
Give pumpkin and pencil	Put the pencil under (CHECK AND CORRECT). Where is it?	under
	Put it in back (CHECK AND CORRECT). Where is it?	in back
	Put it in front (CHECK AND CORRECT). Where is it?	in front
	Put it on top (CHECK AND CORRECT). Where is it?	on top
	Put it inside (CHECK AND CORRECT). Where is it?	inside

Using checker and box, place under, in back, on top, inside. Under, in back, on top, inside

Ola. Recuerda, aprendiste a poner tambien...debajo... detrás...encima...adentro. Put it under...in back... on top...inside.

(GIVE CHILD PENCIL)

Give pumpkin

Aquí está una calabasa. Here is a pumpkin.

Place under, in back, on top, inside

Tu ponlo debajo...detrás...encima...adentro. Put it under...in back...on top...inside.

Ponlo detrás. Dilo, detrás. — detrás
Ponlo debajo. Dilo, debajo. — debajo
Ponlo encima. Dilo, encima. — encima
Ponlo adentro. Dilo, adentro. — adentro

Put it in back. Say, in back. — in back
Put it under. Say under. — under
Put it on top. Say, on top. — on top
Put it inside. Say, inside. — inside

Place pencil in front

Mira. Yo lo pongo...en frente. Dilo, en frente. — en frente
Look. It put it...in front. Say, in front. — in front

Give money

Aquí. Ponlo en frente. Dilo, en frente. — en frente

Give paper

Here. Put it in front. Say, in front. — in front

Place paper in front
Place money in front

¿Dónde está? — en frente
Where is it? — in front

Give auto
Place auto in front

Here. Put it in front (CHECK AND CORRECT).
¿Dónde está? — en frente

Treatment 3 SPANISH-ENGLISH Day 3

(REMOVE PROPS)

Give pumpkin and money	Here. Ponlo debajo. Put it under (CHECK AND CORRECT).	
Give horse	Ponlo detrás. Put it in back (CHECK AND CORRECT).	
Give paper	Here. Ponlo encima. Put it on top (CHECK AND CORRECT).	
Give auto	Aquí. Ponlo en frente. Put it in front (CHECK AND CORRECT).	
	Oye. Listen. (SONG ABOUT THE FARM) (REMOVE PROPS)	
Place under	¿Dónde está?	debajo
Place in back	¿Dónde está?	detrás
Place in front	¿Dónde está?	en frente
Place on top	¿Dónde está?	encima
Place inside	¿Dónde está?	adentro
Give pumpkin and pencil	Here. Put it under. Where is it?	under
	Put it in back. Where is it?	in back
	Put it in front. Where is it?	in front
	Put it on top. Where is it?	on top
	Put it inside. Where is it?	inside

APPENDIX B

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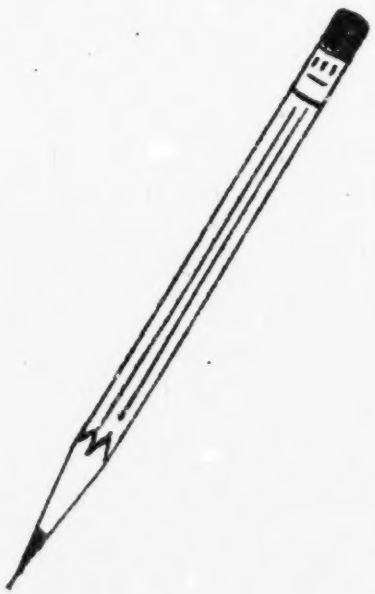

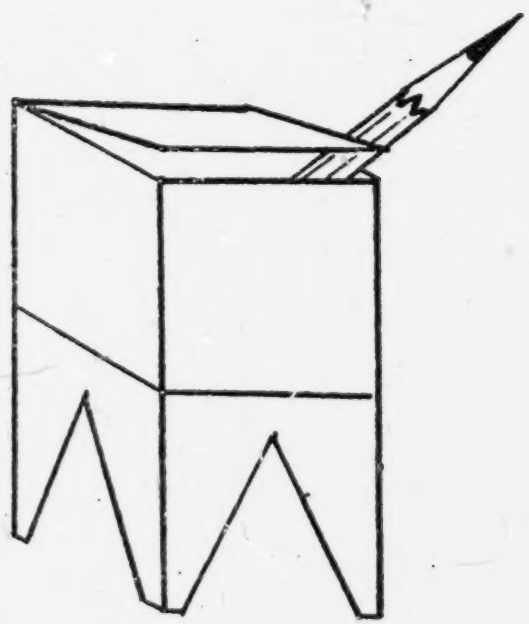

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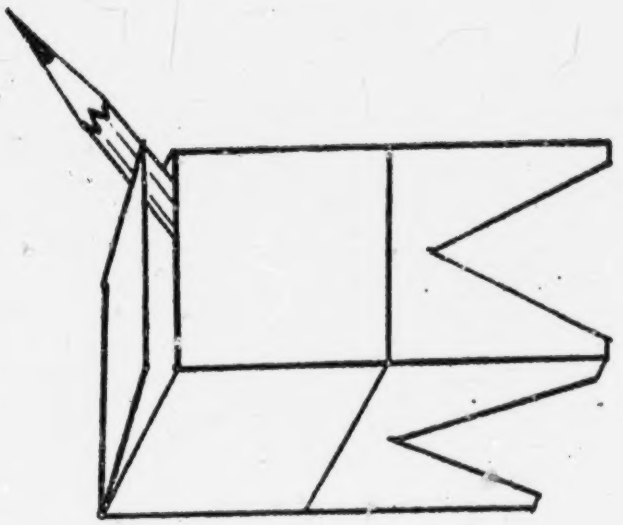

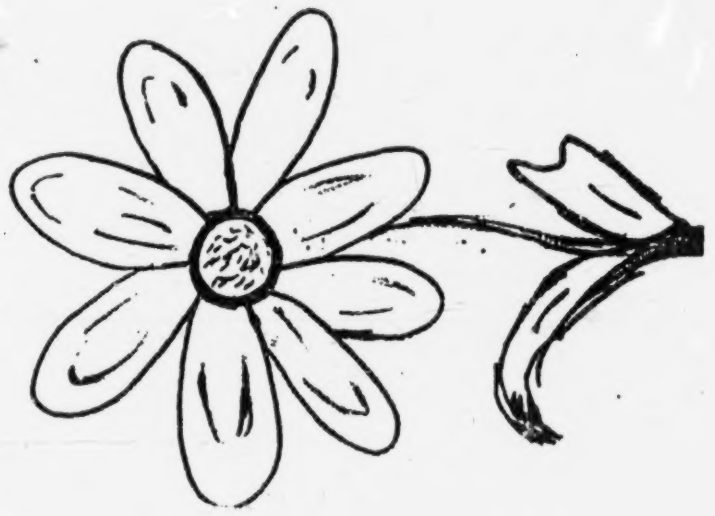

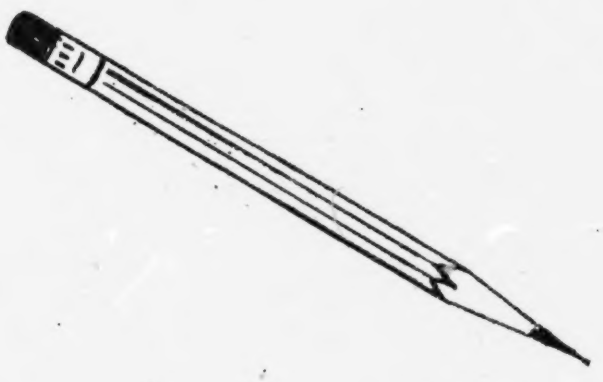

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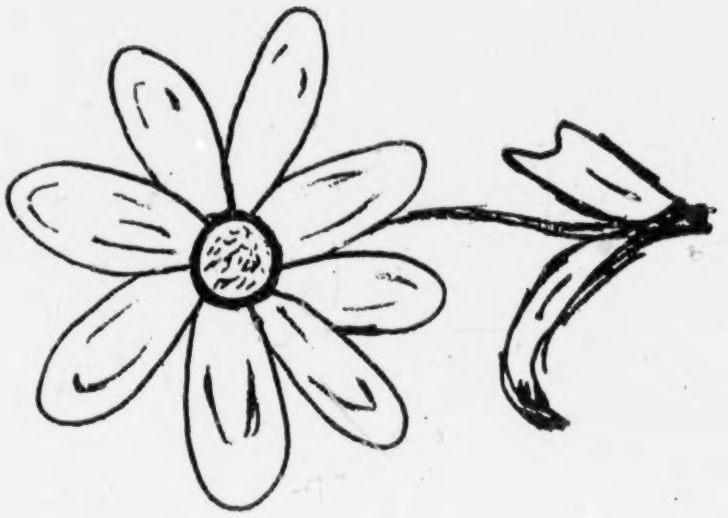

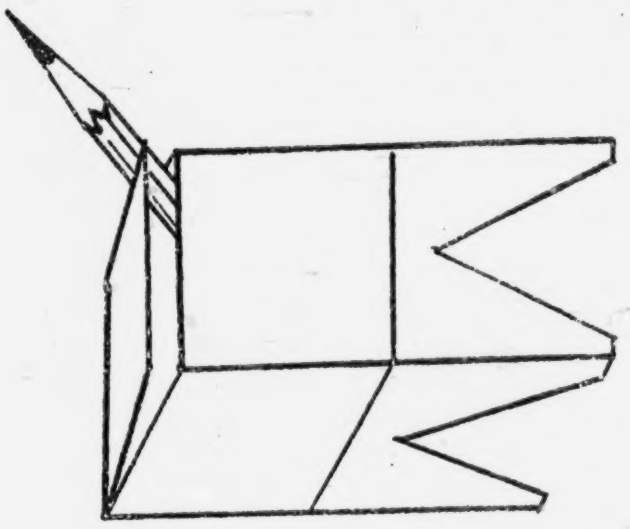

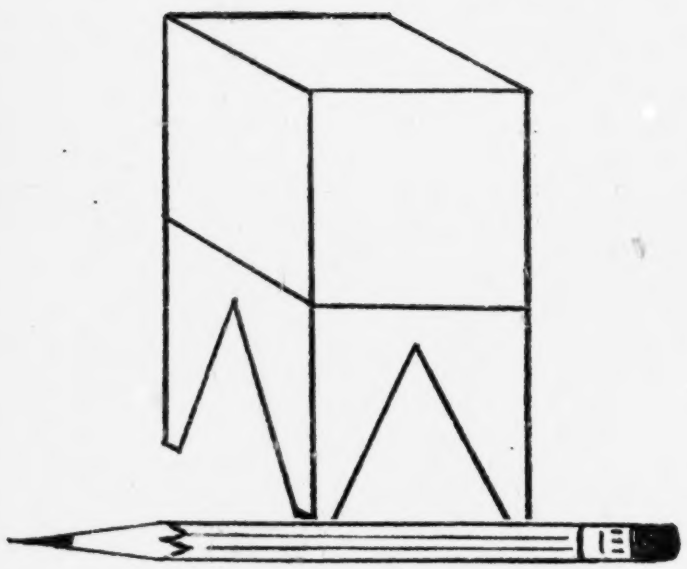

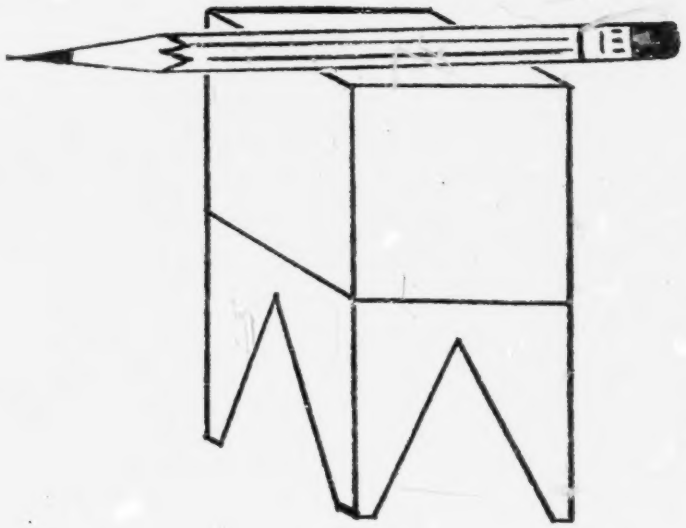

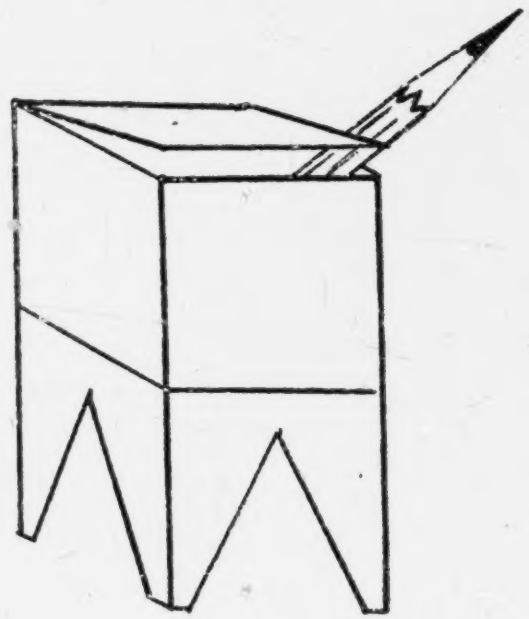

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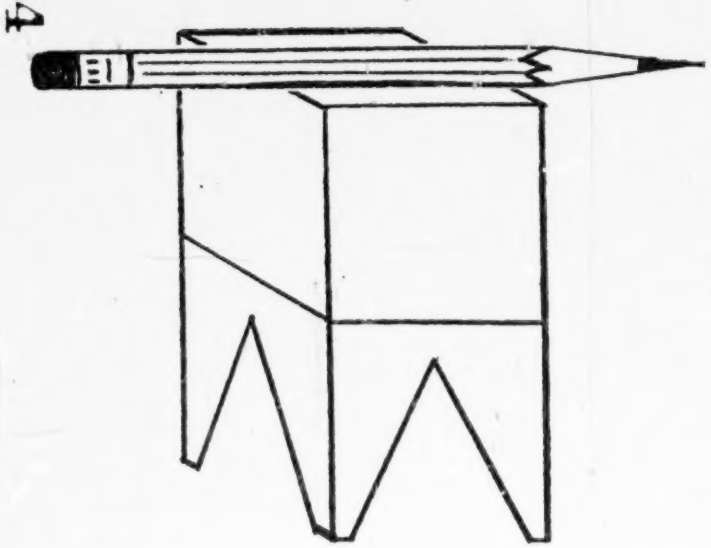

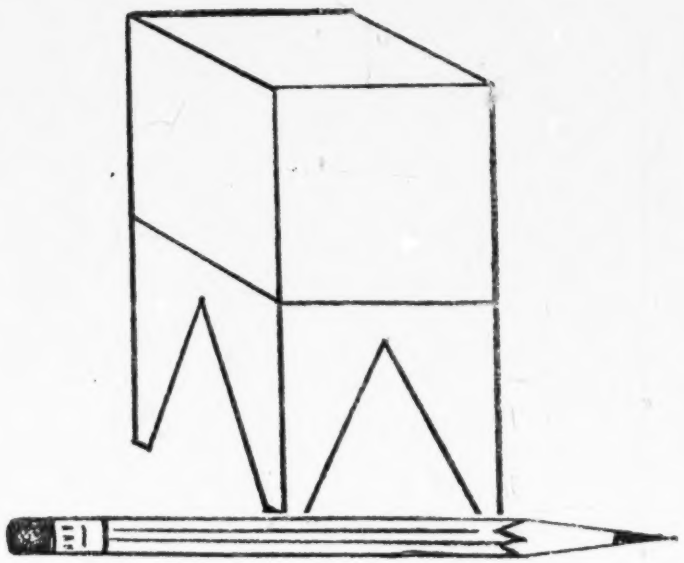

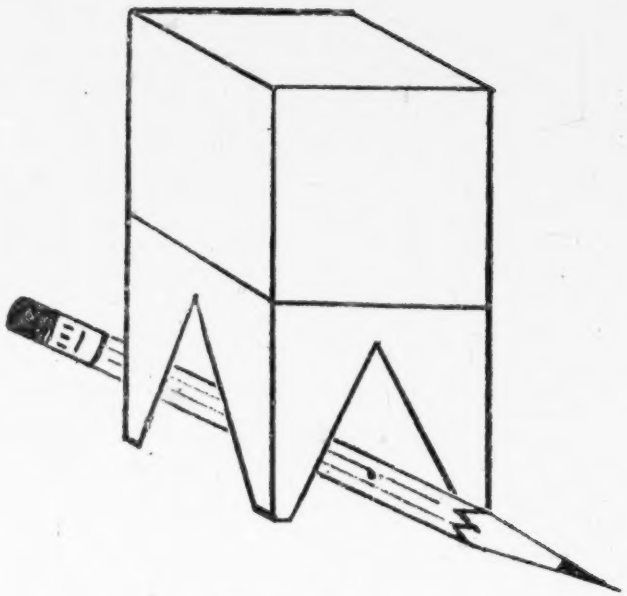

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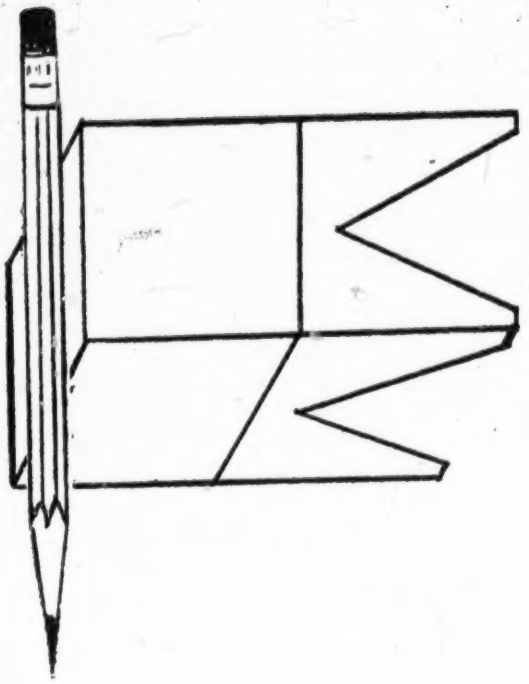

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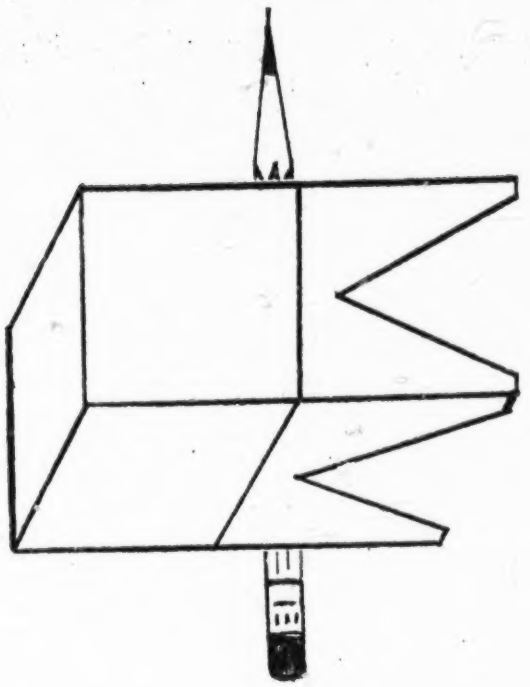

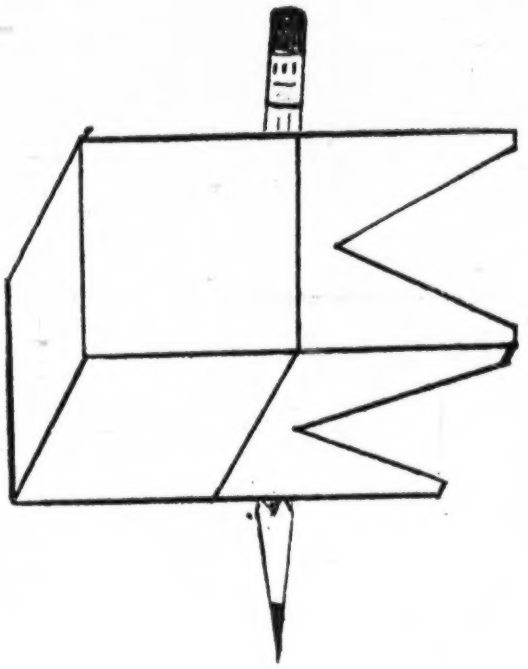

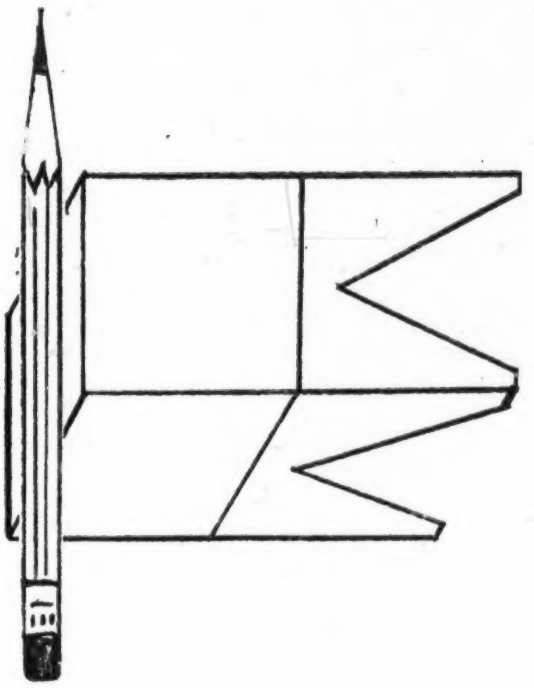

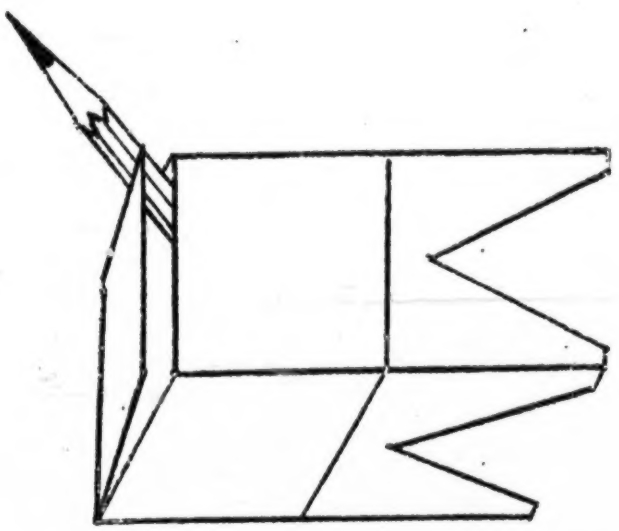

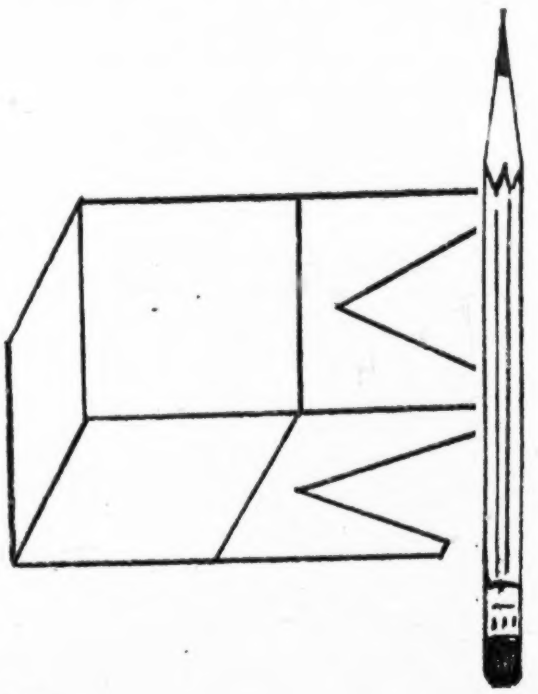

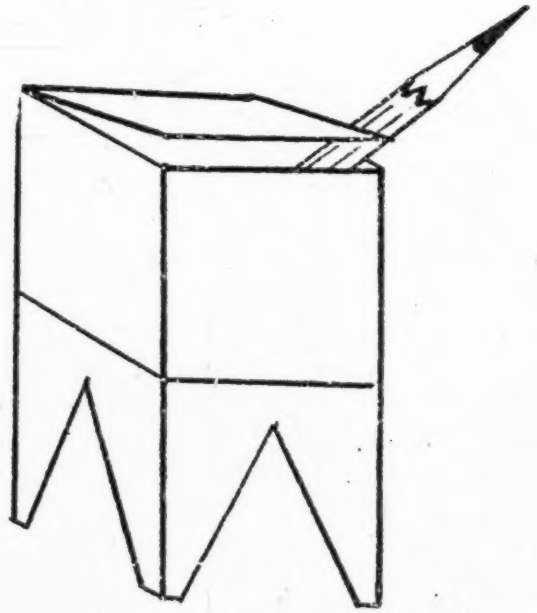

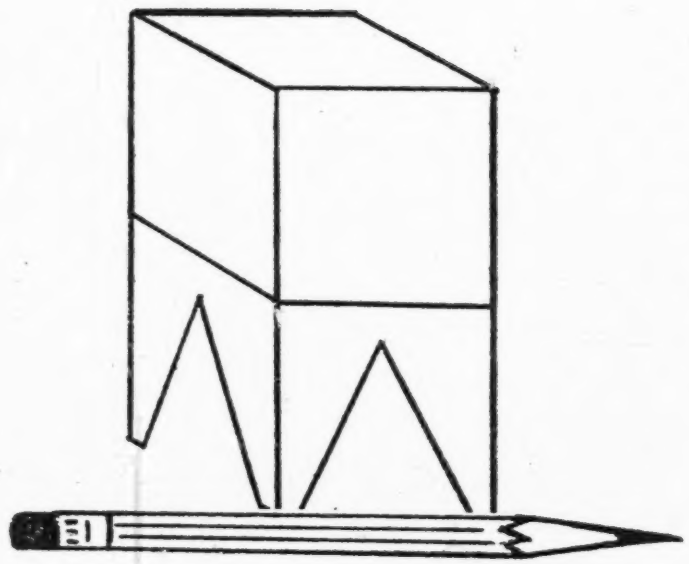

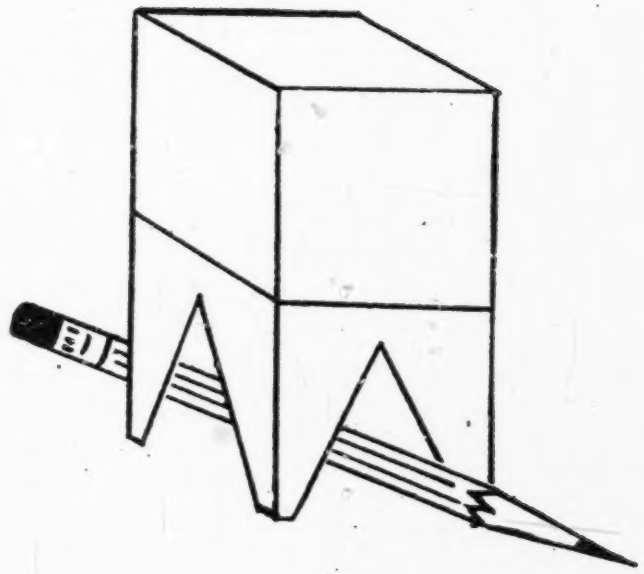

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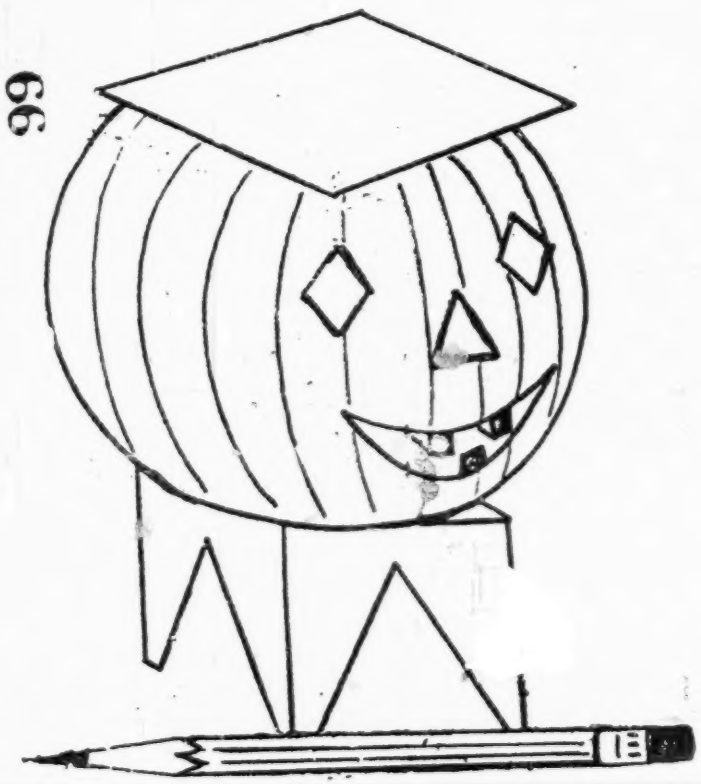

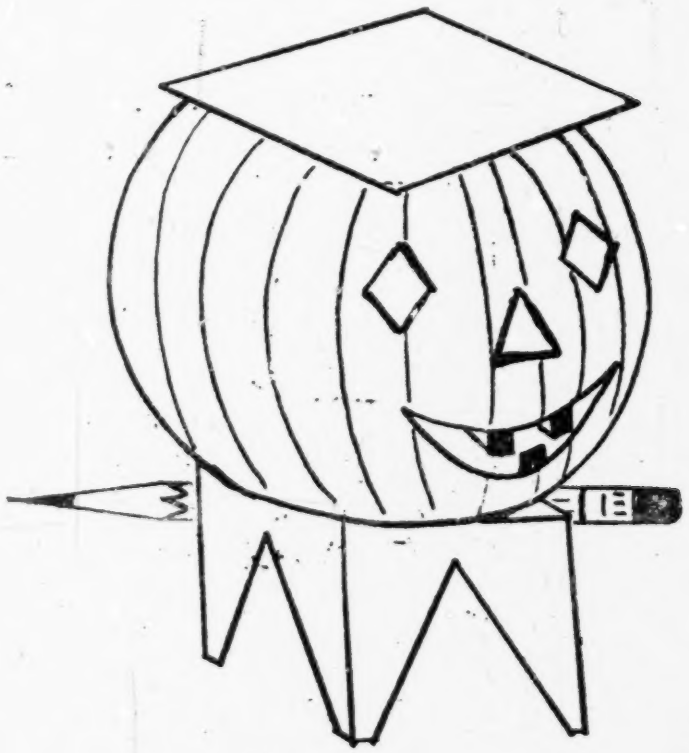

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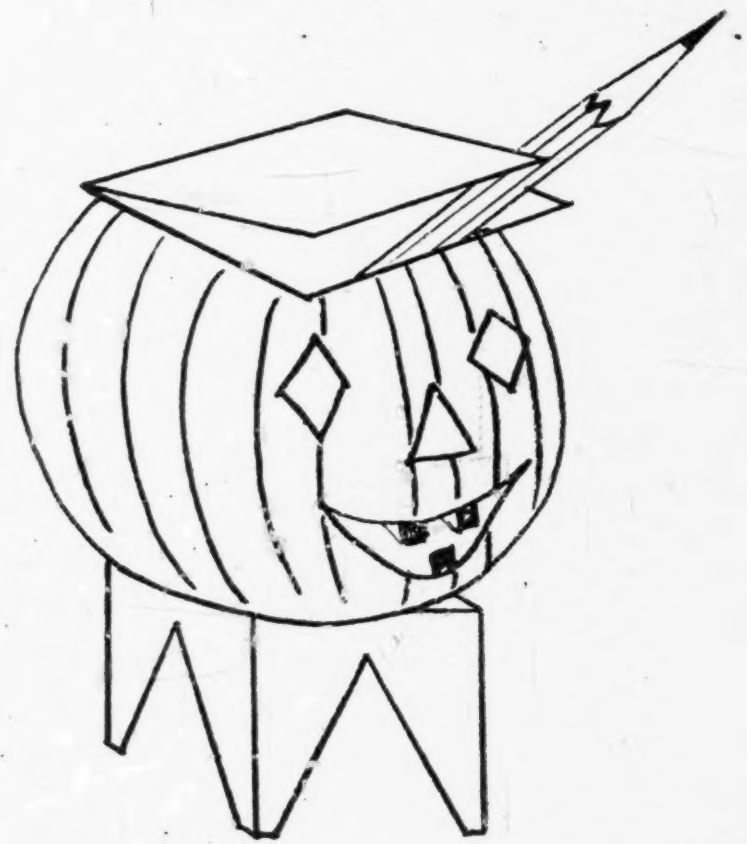

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